

**Title: Thickness Measurement of Masking Lines on Coated Catheters****1. Samples -**

- Group A - full length coated catheters masked using a plug method (~1.0mm wall thickness) , n=3, see Fig. 1
- Group B - short sections of coated catheter tubing masked with OakRiver MX System (0.2 mm wall thickness), n=3, See Fig. 1



Figure 1. (A) MX System mask, (B) 6 Fr catheter, (C) Alternative style plug, (D) Silicone plug tested.

**2. Techniques**

Optical Microscopy  
Optical Interferometry

**3. Purpose**

Measure the coating ridge thickness at the masked/unmasked interface.

**4. SUMMARY**

Coated catheter sections were submitted for optical imaging and thickness measurements of the coating ridge regions created from two masking techniques during the coating process. Interferometry measurements show the samples from Group A to have taller, wider coating ridges on average, than those from Group B. While Group A samples were all within industry standards, Group B samples had smaller and more consistent coating transitions.

See Table 1 and figures below for more details.

**Thickness Measurements:**

Coating thickness profiles were made using the optical interferometer, which creates a profile of the coating/catheter surface from which quantitative measurements can be made. Measurements were made near the peak of the coating ridge. Approximations and ranges of the coating thickness are provided in table 1 below. Example images of the surface profiles, and the ridge measurements are provided in figures 2 and 3 below.

The results show that the samples from Group B, using the MX System masking method, generally have smaller coating ridge profiles than the samples from Group A.

Table 1: Summary of coating thickness measurements on the stent panels.

Group	Sample #	Coating Ridge Thickness ( $\mu\text{m}$ )	
		Front side	Back side
Group A (plug method)	1	~ 18	~ 28
	2	~ 32	~ 28
	3	~ 15	(too inconsistent)
Group B (MX System)	1	7 - 8	8 - 10
	2	~ 7	13 - 15
	3	~ 30	~ 15

**Thickness Profile Images:**

**Group A - sample 2** (masked with plug method)

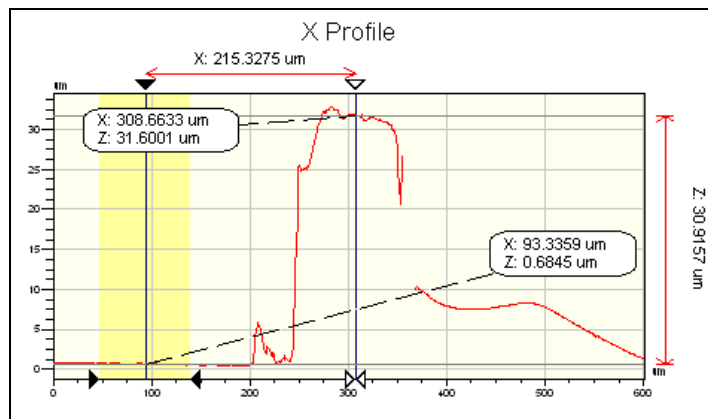
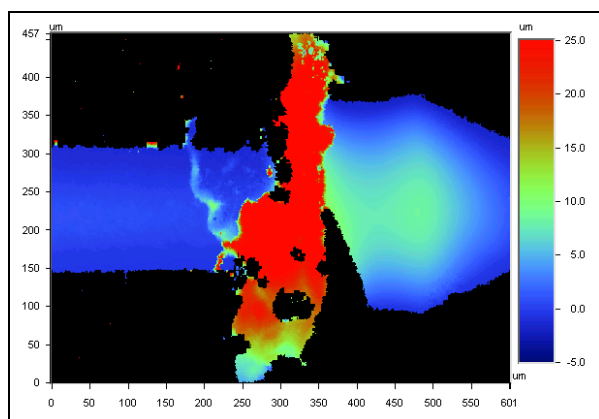


Figure 2. Example surface plot and profile of a sample from group A, which was masked using the plug method. The coating ridge is approximately 30  $\mu\text{m}$  tall.

**Group B - sample 1** (masked with MX System)

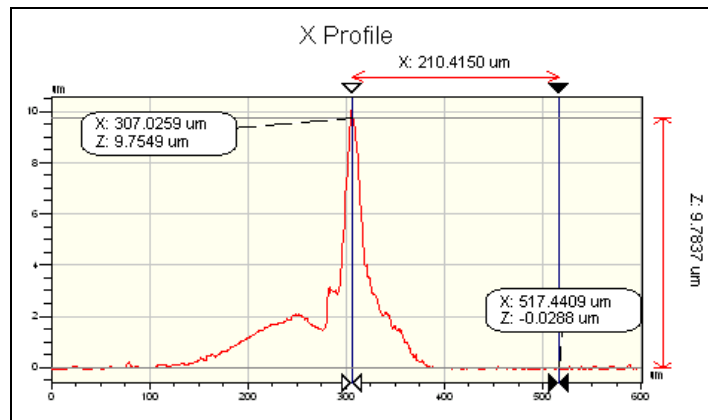
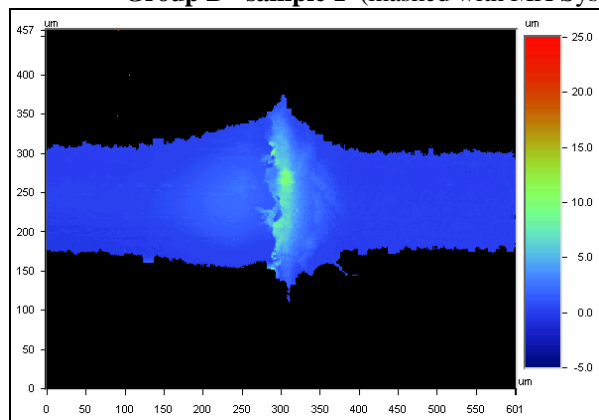


Figure 3. Example surface plot and profile of a sample from group B, masked with a new method. The coating ridge ranges from 8 to 10  $\mu\text{m}$  tall.